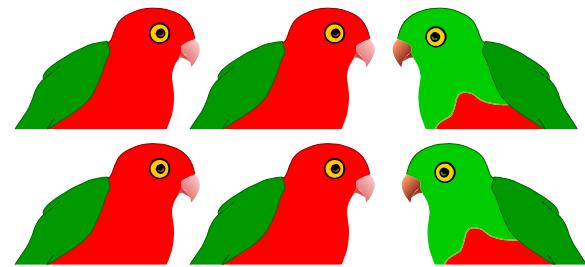
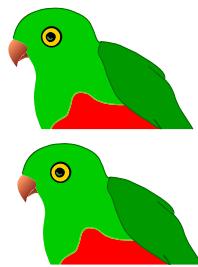
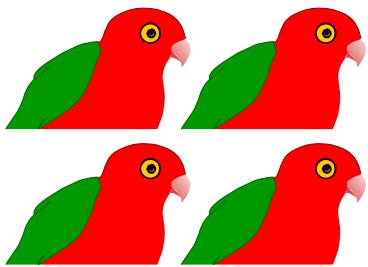


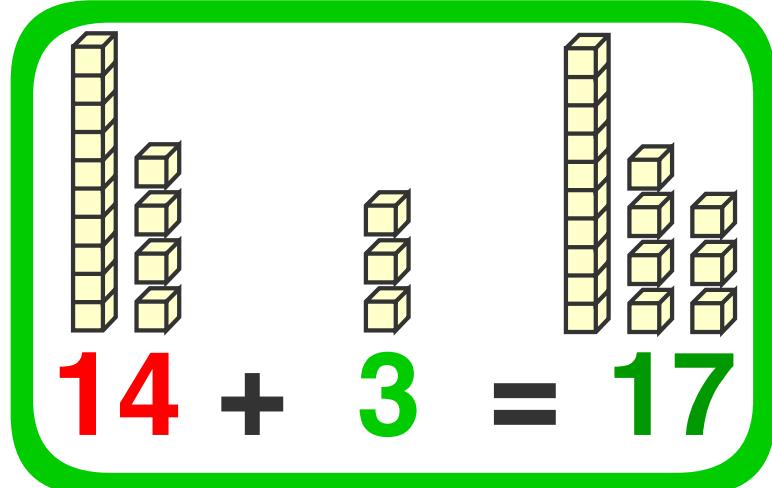
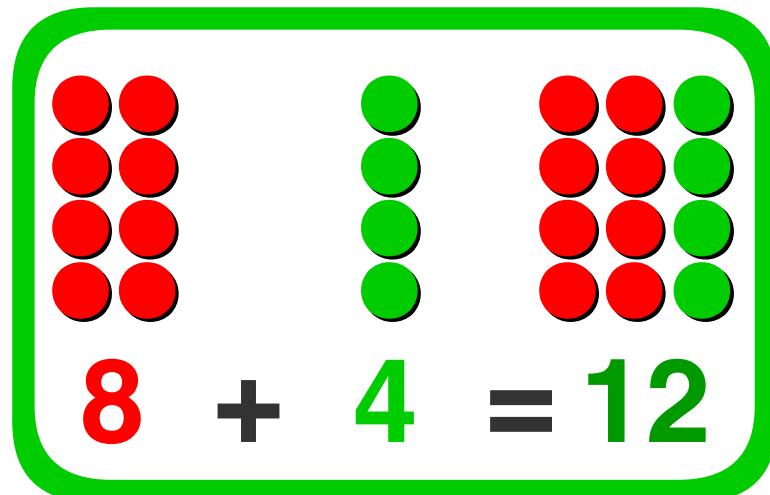
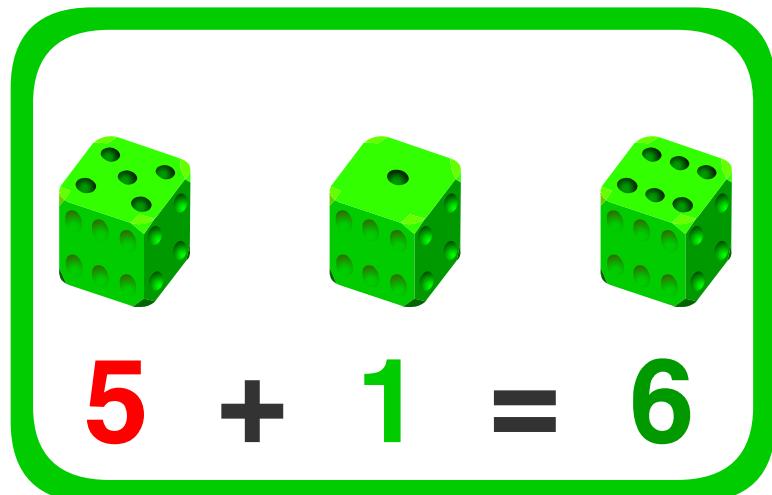
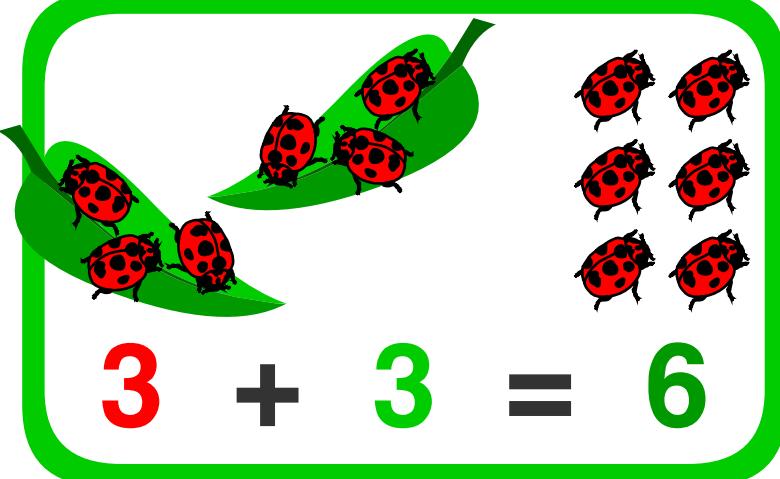
# Addition 1

From: A Maths Dictionary for Kids by Jenny Eather at [www.amathsdictionaryforkids.com](http://www.amathsdictionaryforkids.com)



$$4 + 2 = 6$$

four plus two equals six



In addition, two or more numbers are joined to get one number called the sum or total.

# Addition 2

From: A Maths Dictionary for Kids by Jenny Eather at [www.amathsdictionaryforkids.com](http://www.amathsdictionaryforkids.com)

$$132 + 63 = 195$$

addend      addend      sum



The numbers to be added together are called addends.  
Addition Key Words: plus, add, sum, total.

To add larger numbers vertical or column addition can be used.  
Numbers are written underneath each other according their place value.

The numbers are added vertically, starting with the ones column  
then moving left column by column.

## Adding vertically without trading (carrying, regrouping)

$$132 + 63 =$$

H	T	O
1	3	2
	6	3
1	9	5

$$3564 + 2305 =$$

Th	H	T	O
3	5	6	4
2	3	0	5
5	8	6	9

## Adding vertically with trading (carrying, regrouping)

$$175 + 48 =$$

H	T	O
1	7	5
	4	8
2	2	3

Red arrows point from the tens column to the ones column in both addends, indicating the carrying of tens.

$$7586 + 1945 =$$

Th	H	T	O
7	5	8	6
1	9	4	5
9	5	3	1

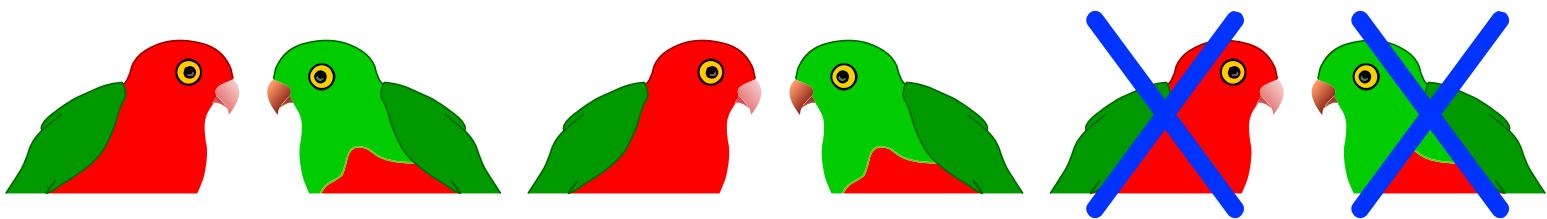
Red arrows point from the tens column to the ones column in both addends, indicating the carrying of tens.

When a column adds up to more than ten, the **tens** go into the next column left and the **ones** stay in their own column.

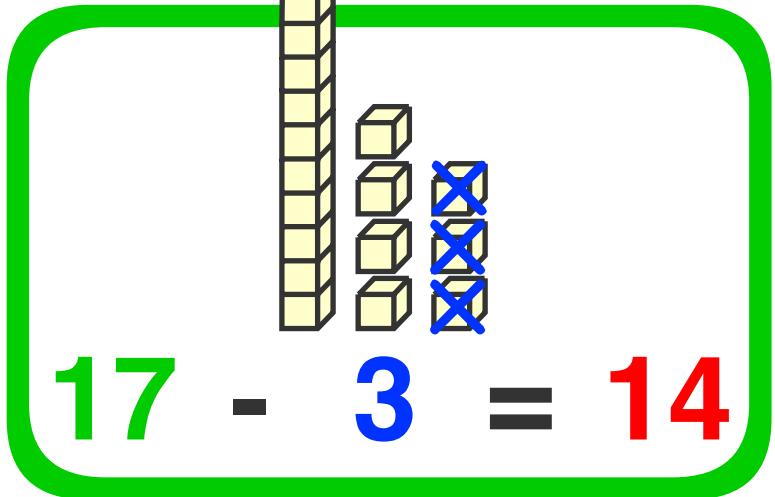
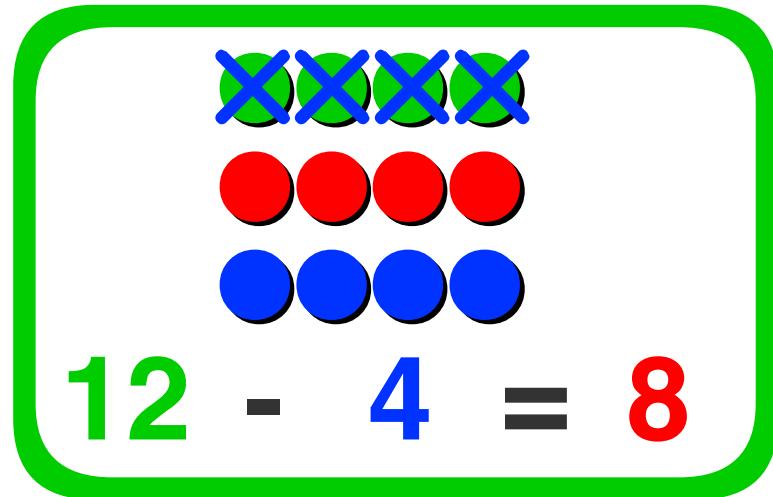
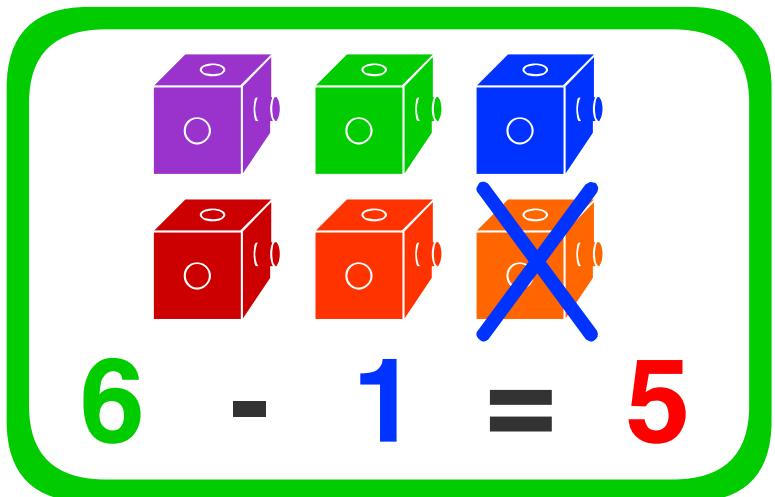
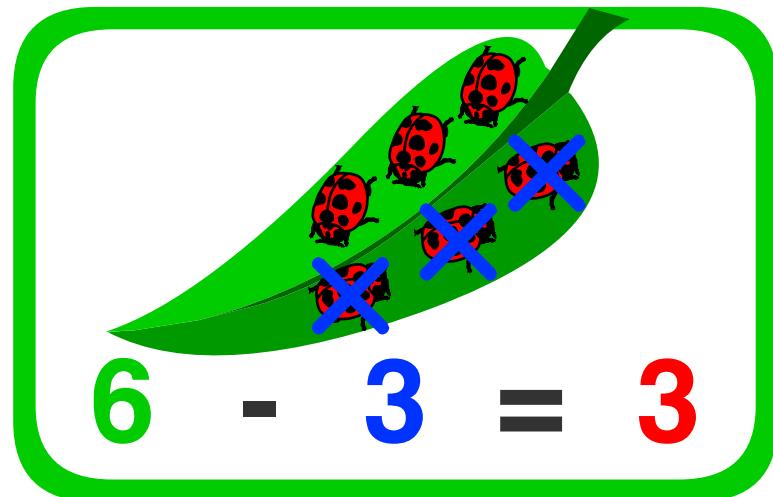


# Subtraction 1

From: A Maths Dictionary for Kids by Jenny Eather at [www.amathsdictionaryforkids.com](http://www.amathsdictionaryforkids.com)



$$\begin{array}{r} 6 \\ \text{six} \end{array} \quad - \quad \begin{array}{r} 2 \\ \text{minus} \end{array} \quad = \quad \begin{array}{r} 4 \\ \text{two} \end{array} \quad \begin{array}{r} \text{equals} \\ \text{four} \end{array}$$



In subtraction, one quantity is taken away from another to find the difference.

# Subtraction 2

From: A Maths Dictionary for Kids by Jenny Eather at [www.amathsdictionaryforkids.com](http://www.amathsdictionaryforkids.com)

$$178 - 32 = 146$$

minuend      subtrahend      difference



**Subtraction Key Words:** minus, subtract, deduct, take away, less, difference, decrease, fewer than, reduce.

To subtract larger numbers vertical or column subtraction can be used. Numbers are written underneath each other according their place value.

The numbers are subtracted vertically, starting with the ones column then moving left column by column.

## Subtracting vertically without trading (regrouping, borrowing)

$$178 - 32 =$$

H	T	O
1	7	8
-	3	2
1	4	6

$$3564 - 2301 =$$

Th	H	T	O
3	5	6	4
2	3	0	1
1	2	6	3

## Subtracting vertically with trading (regrouping, borrowing)

$$345 - 68 =$$

H	T	O
3 <sup>2</sup>	4 <sup>3</sup>	5
-	6	8
2	7	7

$$7523 - 2945 =$$

Th	H	T	O
7 <sup>6</sup>	5 <sup>4</sup>	2 <sup>1</sup>	3
2	9	4	5
4	5	7	8

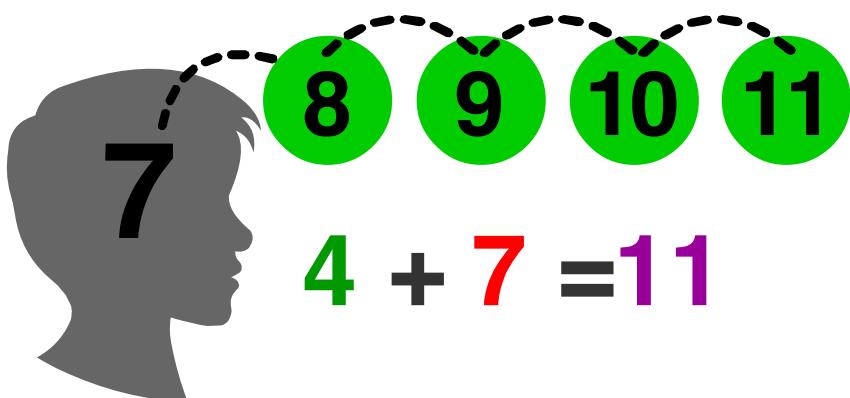
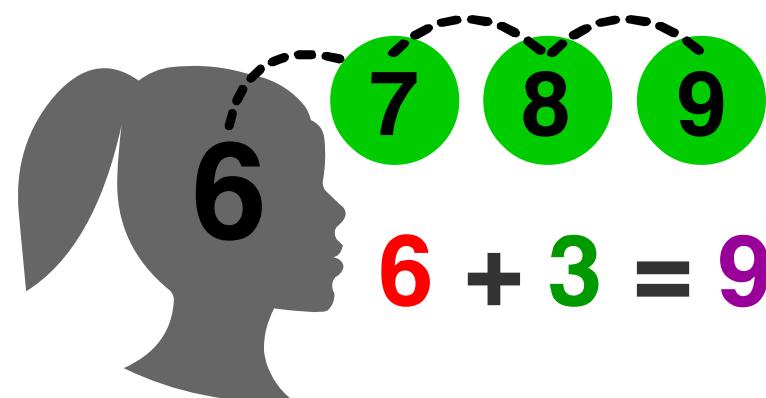
When the bottom digit is greater than the top digit, trade (borrow) a ten from the next column left and ~~1~~ mark it down by one.



# Count on, count back

From: A Maths Dictionary for Kids by Jenny Eather at [www.amathsdictionaryforkids.com](http://www.amathsdictionaryforkids.com)

## Addition - count on.

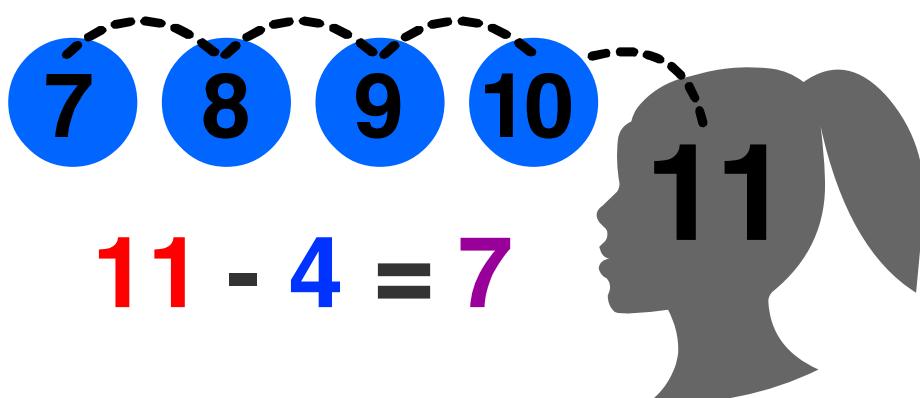
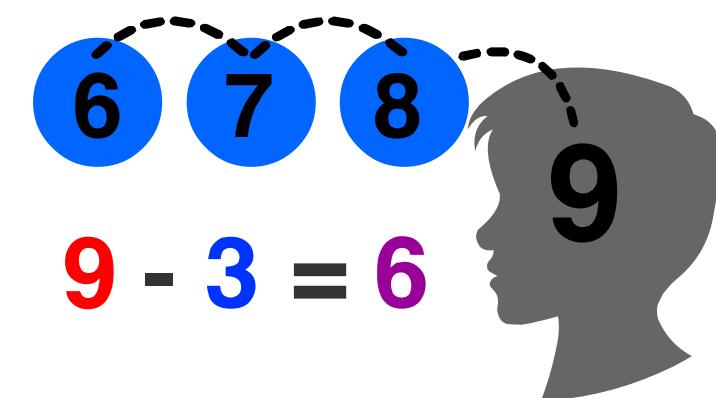


In addition, you don't need to count the larger number, just count on.

$$13 + 5 = 18$$

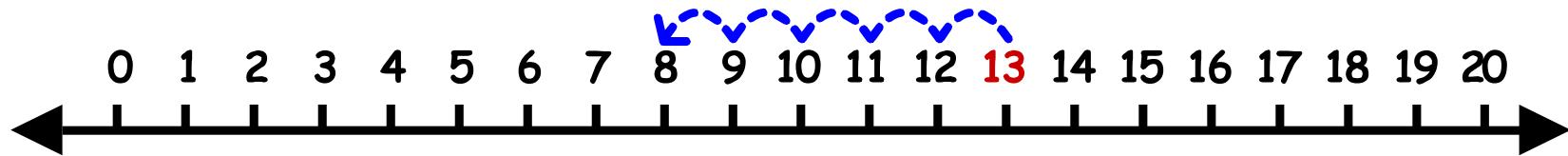


## Subtraction - count back.



In subtraction, count back.

$$13 - 5 = 8$$



A strategy for addition and subtraction.



# Doubles and near doubles

From: A Maths Dictionary for Kids by Jenny Eather at [www.amathsdictionaryforkids.com](http://www.amathsdictionaryforkids.com)

A strategy that uses doubles facts to make addition easier.

## doubles

$$1 + 1 = 2$$



$$2 + 2 = 4$$



$$3 + 3 = 6$$



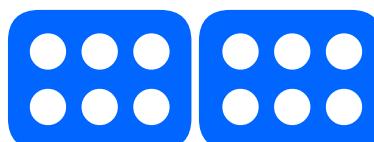
$$4 + 4 = 8$$



$$5 + 5 = 10$$



$$6 + 6 = 12$$



$$7 + 7 = 14$$



$$8 + 8 = 16$$



$$9 + 9 = 18$$



$$10 + 10 = 20$$



## near doubles

$$1 + 2 = 3$$



$$2 + 3 = 5$$



$$3 + 4 = 7$$



$$4 + 5 = 9$$



$$5 + 6 = 11$$



$$6 + 7 = 13$$



$$7 + 8 = 15$$



$$8 + 9 = 17$$



$$9 + 10 = 19$$



$$10 + 11 = 21$$



Look for the patterns going down.

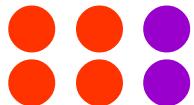


# Extensions

From: A Maths Dictionary for Kids by Jenny Eather at [www.amathsdictionaryforkids.com](http://www.amathsdictionaryforkids.com)

A strategy to extend easy number facts to larger numbers using multiplying by 10.

## Addition

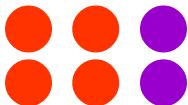


$$4 + 2 = 6$$

$$40 + 20 = 60$$

$$400 + 200 = 600$$

$$4000 + 2000 = 6000$$

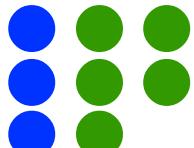


$$6 - 4 = 2$$

$$60 - 40 = 20$$

$$600 - 400 = 200$$

$$6000 - 4000 = 2000$$

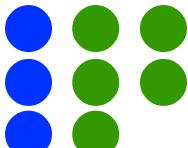


$$3 + 5 = 8$$

$$30 + 50 = 80$$

$$300 + 500 = 800$$

$$3000 + 5000 = 8000$$

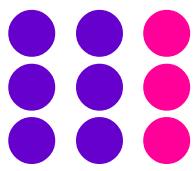


$$8 - 3 = 5$$

$$80 - 30 = 50$$

$$800 - 300 = 500$$

$$8000 - 3000 = 5000$$

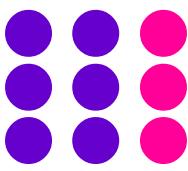


$$6 + 3 = 9$$

$$60 + 30 = 90$$

$$600 + 300 = 900$$

$$6000 + 3000 = 9000$$



$$9 - 6 = 3$$

$$90 - 60 = 30$$

$$900 - 600 = 300$$

$$9000 - 6000 = 3000$$

Look for the patterns.

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# Inverse operations

From: A Maths Dictionary for Kids by Jenny Eather at [www.amathsdictionaryforkids.com](http://www.amathsdictionaryforkids.com)

Inverse operations are opposite or reverse operations.

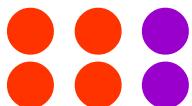
Addition and subtraction are inverse operations.

An addition fact will give a subtraction fact and vice versa.

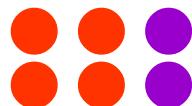
Addition

inverse

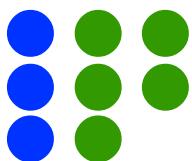
Subtraction



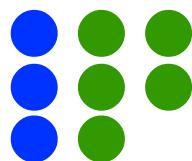
$$\begin{array}{r} 4 + 2 = 6 \\ 2 + 4 = 6 \end{array}$$



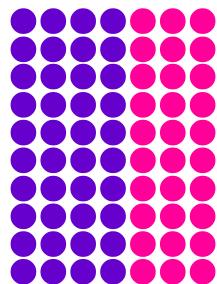
$$\begin{array}{r} 6 - 4 = 2 \\ 6 - 2 = 4 \end{array}$$



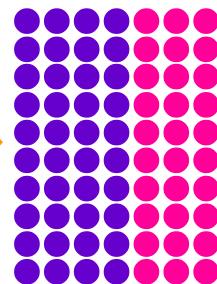
$$\begin{array}{r} 3 + 5 = 8 \\ 5 + 3 = 8 \end{array}$$



$$\begin{array}{r} 8 - 3 = 5 \\ 8 - 5 = 3 \end{array}$$



$$\begin{array}{r} 40 + 30 = 70 \\ 30 + 40 = 70 \end{array}$$



$$\begin{array}{r} 70 - 40 = 30 \\ 70 - 30 = 40 \end{array}$$

$$\begin{array}{r} 256 \\ + 423 \\ \hline 679 \end{array}$$

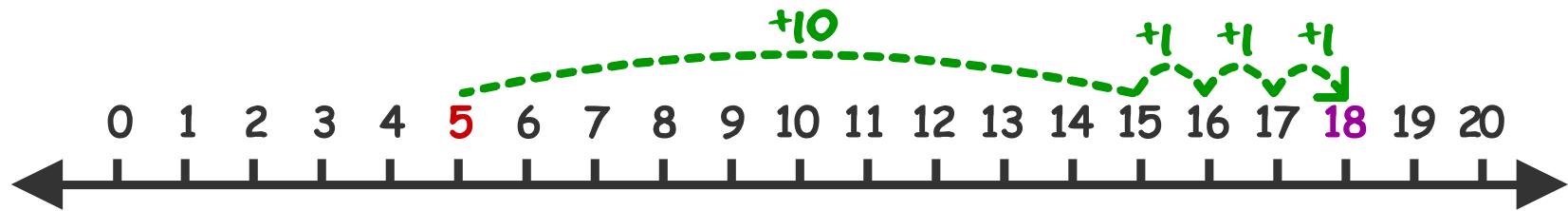
$$\begin{array}{r} 679 \\ - 423 \\ \hline 256 \end{array}$$

You can use addition facts to check subtraction, or use subtraction facts to check addition.

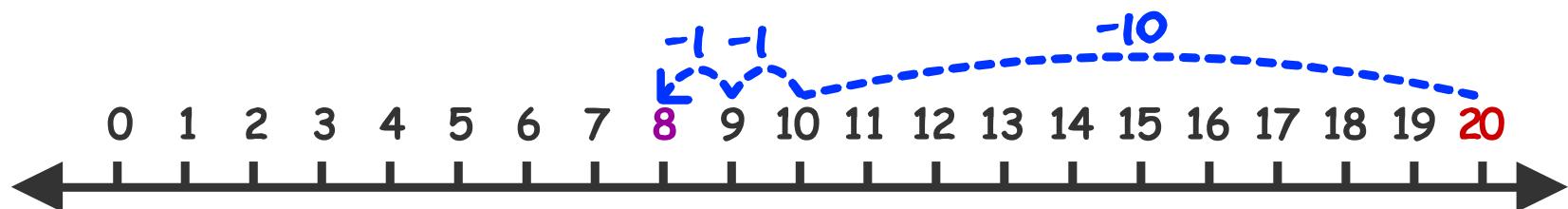
# Jump strategy

From: A Maths Dictionary for Kids by Jenny Eather at [www.amathsdictionaryforkids.com](http://www.amathsdictionaryforkids.com)

A strategy that adds or subtracts a number in jumps according to place value.



$$5 + 13 \text{ in jumps} = 5 + 10 + 1 + 1 + 1 = 18$$



$$20 - 12 \text{ in jumps} = 20 - 10 - 1 - 1 = 8$$

The jump strategy on a hundreds chart.

$$\begin{array}{r} 53 \\ + 35 \\ \hline 88 \end{array}$$

In addition:

- to add 10s, go down the rows.
- to add 1s, go right across the columns.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

In subtraction:  
• to subtract 10s, go up the rows.  
• to subtract 1s, go left across the columns.

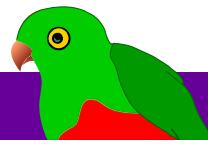
$$\begin{array}{r} 39 \\ - 34 \\ \hline 5 \end{array}$$

# Split strategy (partitioning)

From: A Maths Dictionary for Kids by Jenny Eather at [www.amathsdictionaryforkids.com](http://www.amathsdictionaryforkids.com)

A strategy that splits (partitions) numbers into their place values to make calculations easier.

May be written in different ways.



## Addition

$$\begin{array}{r} 45 \\ + 33 \\ \hline = 40 + 5 + 30 + 3 \\ = 70 + 8 \\ = 78 \end{array}$$

## Subtraction

$$\begin{array}{r} 78 \\ - 45 \\ \hline = 70 + 8 - 40 + 5 \\ = 30 + 3 \\ = 33 \end{array}$$

$$\begin{array}{r} 245 \\ + 633 \\ \hline = 800 + 70 + 8 \\ = 878 \end{array}$$

$$\begin{array}{r} 878 \\ - 245 \\ \hline = 600 + 30 + 3 \\ = 633 \end{array}$$

$$\begin{array}{r} 245 \\ + 633 \\ \hline 800 \\ 70 \\ 8 \\ \hline 878 \end{array}$$

$$\begin{array}{r} 878 \\ - 245 \\ \hline 600 \\ 30 \\ 3 \\ \hline 633 \end{array}$$

Start with the largest place value.



# Reordering

From: A Maths Dictionary for Kids by Jenny Eather at [www.amathsdictionaryforkids.com](http://www.amathsdictionaryforkids.com)

An addition strategy that changes the order of addends to make calculations easier.

$$\begin{array}{ccc} 132 & + & 63 = 195 \\ \text{addend} & & \text{addend} & \text{sum} \end{array}$$



This strategy is based on the commutative law, rule or property.

That is, in addition the sum will remain the same regardless of the order of the addends.

$$\begin{aligned} 2 + 17 &= 17 + 2 \\ &= 19 \end{aligned}$$

$$\begin{aligned} 20 + 32 + 843 &= 843 + 32 + 20 \\ &= 895 \end{aligned}$$

$$\begin{array}{rcl} 433 & & 554 \\ 12 & \longrightarrow & 433 \\ + 554 & & + 12 \\ \hline & & 999 \end{array}$$

Start with the larger numbers.

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# Compensation, change methods

From: A Maths Dictionary for Kids by Jenny Eather at [www.amathsdictionaryforkids.com](http://www.amathsdictionaryforkids.com)

In compensation, one number is rounded to ten or a hundred then the answer is adjusted to compensate for the change.

$$\begin{aligned} 56 + 38 &= \text{Round } 56 + 40 - 2 \\ &= 96 - 2 \\ &= 94 \quad \text{Adjust} \end{aligned}$$

$$\begin{aligned} 94 - 38 &= \text{Round } 94 - 40 + 2 \\ &= 54 + 2 \\ &= 56 \quad \text{Adjust} \end{aligned}$$

$$\begin{aligned} 623 + 198 &= \text{Round } 623 + 200 - 2 \\ &= 823 - 2 \\ &= 821 \quad \text{Adjust} \end{aligned}$$

$$\begin{aligned} 786 - 298 &= \text{Round } 786 - 300 + 2 \\ &= 486 + 2 \\ &= 488 \quad \text{Adjust} \end{aligned}$$

Change methods are similar but the second number (not the answer) is adjusted to compensate for the change.

$$\begin{array}{rcccl} 56 & \xrightarrow{-2} & 54 \\ + 38 & \xrightarrow{+2} & + 40 \\ \hline & & 94 \end{array}$$

$$\begin{array}{rcccl} 94 & \xrightarrow{+2} & 96 \\ - 38 & \xrightarrow{+2} & - 40 \\ \hline & & 56 \end{array}$$

$$\begin{array}{rcccl} 726 & \xrightarrow{-3} & 723 \\ + 197 & \xrightarrow{+3} & + 200 \\ \hline & & 923 \end{array}$$

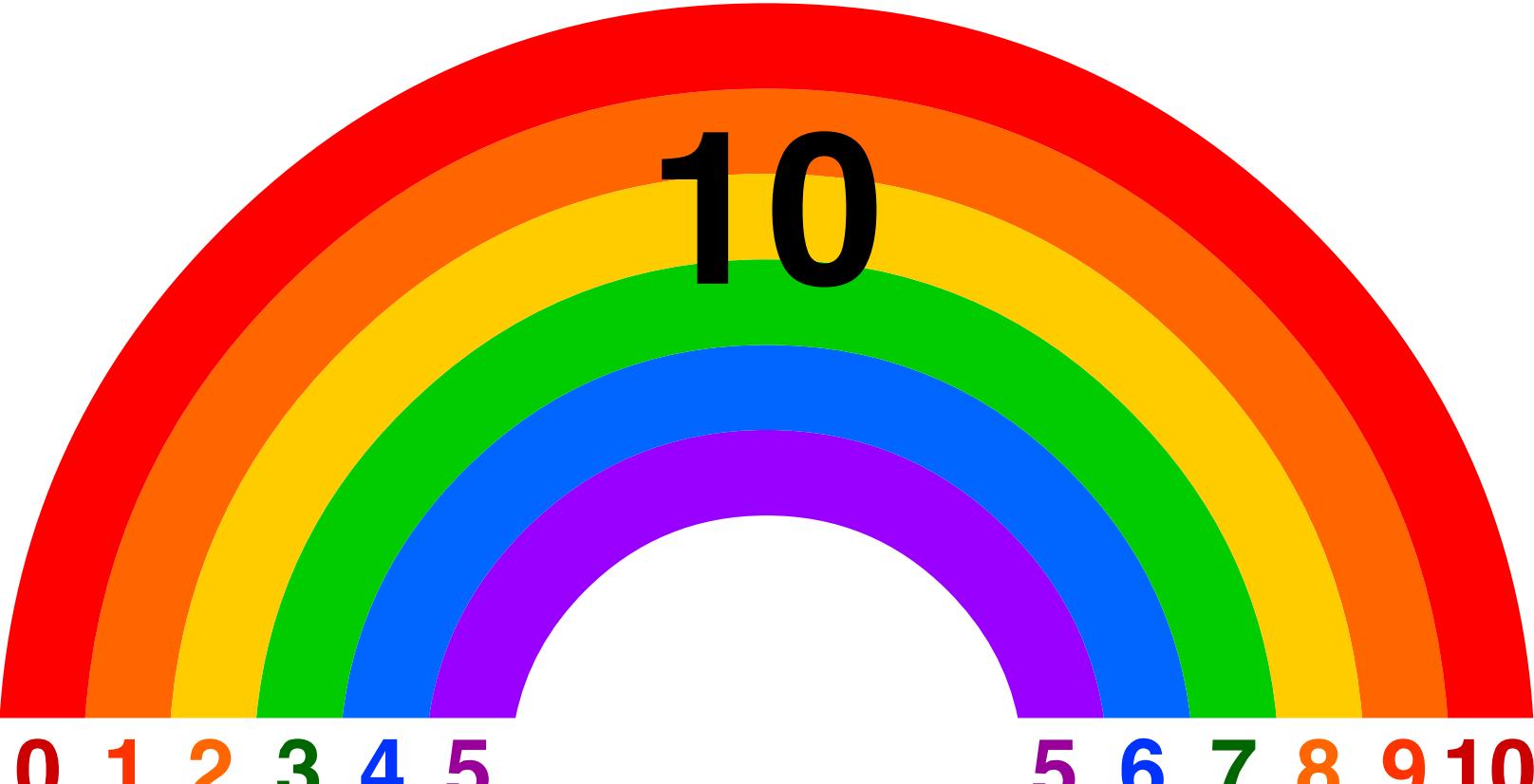
$$\begin{array}{rcccl} 923 & \xrightarrow{+3} & 926 \\ - 197 & \xrightarrow{+3} & - 200 \\ \hline & & 726 \end{array}$$

Addition  
Opposite Change

Subtraction  
Same Change

# Rainbow Facts

From: A Maths Dictionary for Kids by Jenny Eather at [www.amathsdictionaryforkids.com](http://www.amathsdictionaryforkids.com)



10

0 1 2 3 4 5

5 6 7 8 9 10

$$0 + 10 = 10$$

$$10 + 0 = 10$$

$$1 + 9 = 10$$

$$9 + 1 = 10$$

$$2 + 8 = 10$$

$$8 + 2 = 10$$

$$3 + 7 = 10$$

$$7 + 3 = 10$$

$$4 + 6 = 10$$

$$6 + 4 = 10$$

$$5 + 5 = 10$$

$$5 + 5 = 10$$



# Addition Table



From: A Maths Dictionary for Kids by Jenny Eather at [www.amathsdictionaryforkids.com](http://www.amathsdictionaryforkids.com)

Read across **and** down  
to find the sum of any two green numbers.



1    2    3    4    5    6    7    8    9    10

1	2	3	4	5	6	7	8	9	10	11
2	3	4	5	6	7	8	9	10	11	12
3	4	5	6	7	8	9	10	11	12	13
4	5	6	7	8	9	10	11	12	13	14
5	6	7	8	9	10	11	12	13	14	15
6	7	8	9	10	11	12	13	14	15	16
7	8	9	10	11	12	13	14	15	16	17
8	9	10	11	12	13	14	15	16	17	18
9	10	11	12	13	14	15	16	17	18	19
10	11	12	13	14	15	16	17	18	19	20

Look for the patterns.



# Subtraction Table



From: A Maths Dictionary for Kids by Jenny Eather at [www.amathsdictionaryforkids.com](http://www.amathsdictionaryforkids.com)

Read across **and** down  
to find the difference between any two blue numbers.



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13
7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12
8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11
9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10
10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9
11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8
12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7
13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5
15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4
16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3
17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2
18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1
19	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0
20	-19	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1

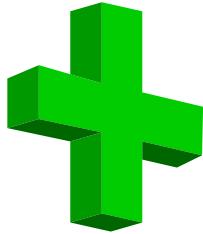
Look for the patterns.



# Addition properties



From: A Maths Dictionary for Kids by Jenny Eather at [www.amathsdictionaryforkids.com](http://www.amathsdictionaryforkids.com)



## Commutative property

- in addition, numbers may be added in any order.

$$a + b = b + a$$

$$6 + 2 = 8$$

or

$$2 + 6 = 8$$



## Associative property

- in addition, no matter how the numbers are grouped, the answer will always be the same.

$$(a + b) + c = a + (b + c)$$

$$(4 + 2) + 6$$

gives the same total as

$$4 + (2 + 6)$$



## Additive identity property of 0

- adding zero won't change a number,
- when zero is added to a number the result is the number itself.

$$a + 0 = a$$

$$6 + 0 = 6$$

or

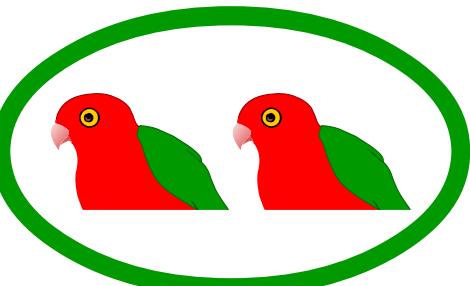
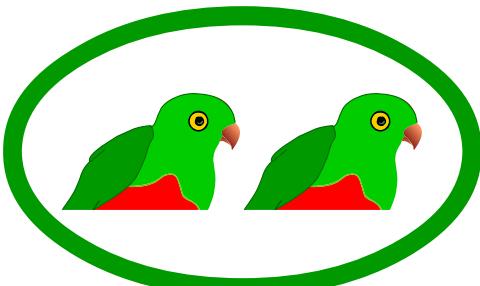
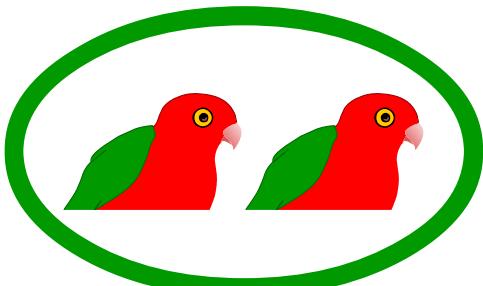
$$0 + 6 = 6$$



# Multiplication 1

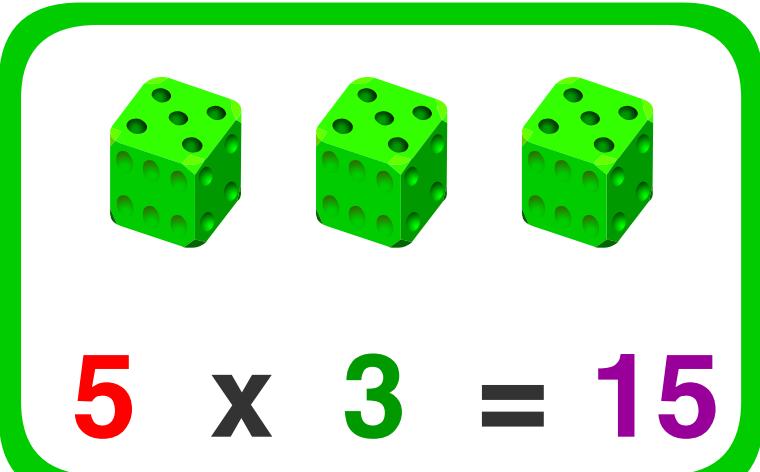
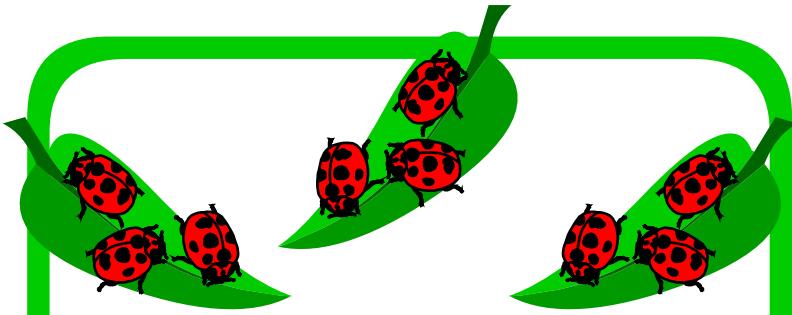
From: A Maths Dictionary for Kids by Jenny Eather at [www.amathsdictionaryforkids.com](http://www.amathsdictionaryforkids.com)

groups of 2, 3 times = 6



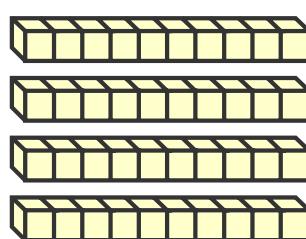
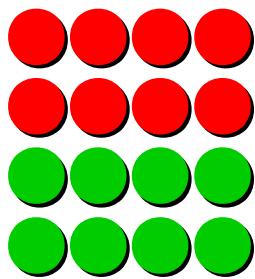
$$2 \times 3 = 6$$

two times three equals six



$$3 \times 3 = 9$$

$$5 \times 3 = 15$$



$$8 \times 2 = 16$$

$$10 \times 4 = 40$$

Multiplication is a mathematical operation where a number is added to itself a number of times.



# Multiplication 2

From: A Maths Dictionary for Kids by Jenny Eather at [www.amathsdictionaryforkids.com](http://www.amathsdictionaryforkids.com)

$$\begin{array}{r} 10 \\ \text{multiplier} \end{array} \times \begin{array}{r} 20 \\ \text{multiplicand} \end{array} = \begin{array}{r} 200 \\ \text{product} \end{array}$$



Numbers may be multiplied in any order to get the product.  
Multiplication Key Words: times, multiplied by, product.

To multiply larger numbers a vertical algorithm can be used.  
Numbers are written underneath each other according their place value.  
The numbers are multiplied vertically, starting with the ones column  
then moving left column by column.

## Multiplying vertically without trading (carrying, regrouping)

$$132 \times 3 =$$

H	T	O
1	3	2
x		3
3	9	6

$$4234 \times 2 =$$

Th	H	T	O
4	2	3	4
x			2
8	4	6	8

## Multiplying vertically with trading (carrying, regrouping)

$$153 \times 6 =$$

H	T	O
1	5	3
x		6
9	1	8

Red arrows point from the tens column of the first row to the ones column of the second row, indicating the carry-over of 1 from the tens column to the ones column of the answer.

$$1386 \times 7 =$$

Th	H	T	O
1	3	8	6
x			7
9	7	0	2

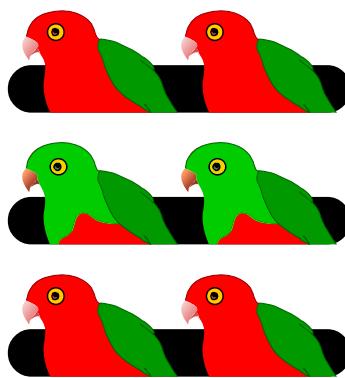
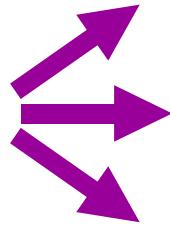
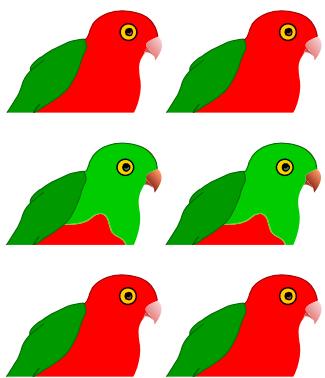
Red arrows point from the tens column of each row to the tens column of the next row, indicating the carry-over of tens from one column to the next.

When a column is more than ten, the **tens** go into the **next column left** and are **added to the answer**, the **ones** stay in their own column.



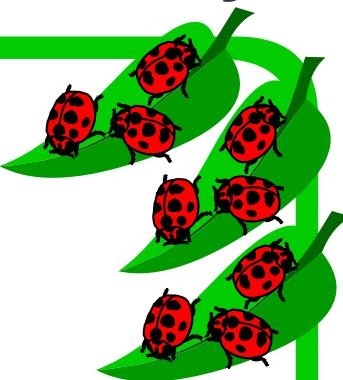
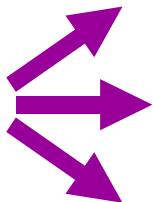
# Division 1

From: A Maths Dictionary for Kids by Jenny Eather at [www.amathsdictionaryforkids.com](http://www.amathsdictionaryforkids.com)

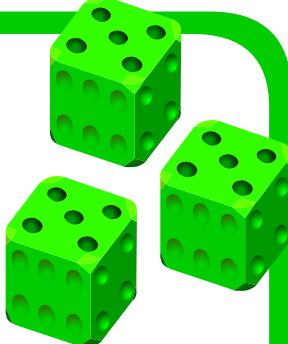
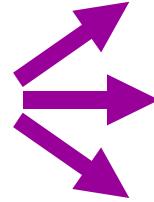
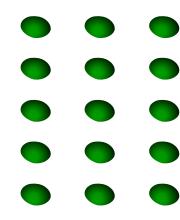


$$6 \div 3 = 2$$

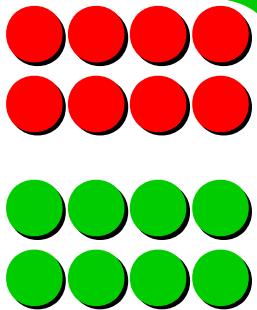
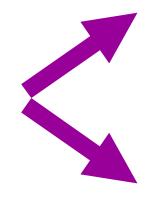
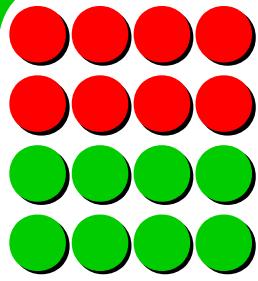
six divided by three equals two



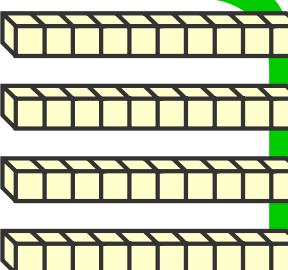
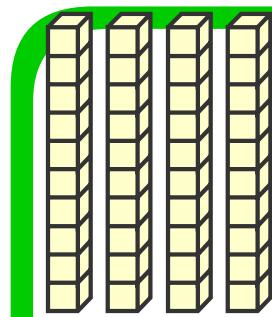
$$9 \div 3 = 3$$



$$15 \div 3 = 5$$



$$16 \div 2 = 8$$



$$40 \div 4 = 10$$

Division is a mathematical operation which involves sharing or grouping a number into equal parts.

# Division 2

From: A Maths Dictionary for Kids by Jenny Eather at [www.amathsdictionaryforkids.com](http://www.amathsdictionaryforkids.com)

$$\begin{array}{r} 56 \\ \text{dividend} \end{array} \quad \div \quad \begin{array}{r} 8 \\ \text{divisor} \end{array} \quad = \quad \begin{array}{r} 7 \\ \text{quotient} \end{array}$$



**Division Key Words:** divide, divided by, remainder, dividend, divisor, quotient.

To divide larger numbers a horizontal algorithm is used with a division symbol often called the division bracket.

$$\begin{array}{r} 7 \\ \text{quotient (answer)} \\ \hline \text{divisor } 8 ) \overline{) 56} \text{ dividend} \end{array}$$



Start at the left and work to the right.

Any remainders are moved to become the tens in the next place to the right.

Any final remainder may be written as shown.

$$\begin{array}{r} 13 \text{ r } 2 \\ \hline 7 ) 93 \end{array}$$

Remainder as a whole number.

$$\begin{array}{r} 239\frac{1}{4} \\ \hline 4 ) 957 \end{array}$$

Remainder as a fraction.

$$\begin{array}{r} 117.25 \\ \hline 8 ) 938 \end{array}$$

Remainder as a decimal fraction.

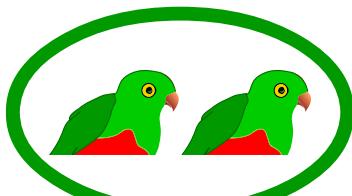
Remainders may be written as whole numbers, fractions or decimal fractions.

# Using groups and arrays

From: A Maths Dictionary for Kids by Jenny Eather at [www.amathsdictionaryforkids.com](http://www.amathsdictionaryforkids.com)

In early multiplication and division, using groups or arrays of rows and columns make counting and calculating easier.

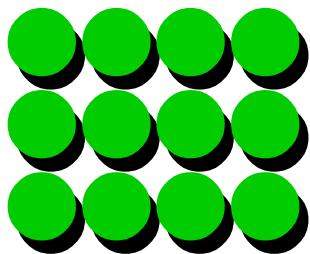
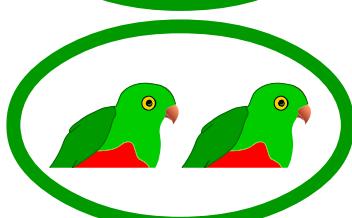
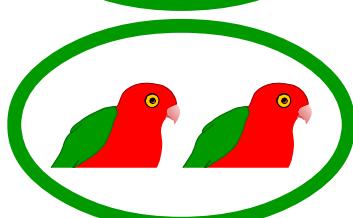
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$$4 \text{ groups of } 2 = 8$$

$$2 \times 4 = 8$$

$$8 \div 4 = 2$$



$$3 \text{ rows of } 4 = 12$$

$$4 \times 3 = 12$$

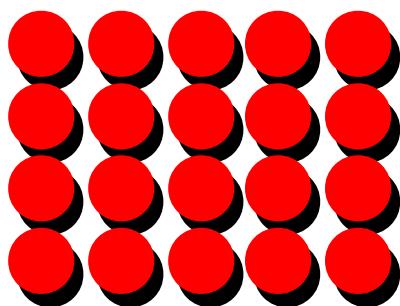
$$12 \div 3 = 4$$



$$3 \text{ groups of } 3 = 9$$

$$3 \times 3 = 9$$

$$9 \div 3 = 3$$



$$4 \text{ rows of } 5 = 20$$

$$5 \times 4 = 20$$

$$20 \div 4 = 5$$



# Extensions

From: A Maths Dictionary for Kids by Jenny Eather at [www.amathsdictionaryforkids.com](http://www.amathsdictionaryforkids.com)

A strategy to extend easy number facts to larger numbers using multiplying by 10.

## Multiplication



$$2 \times 3 = 6$$

$$2 \times 30 = 60$$

$$2 \times 300 = 600$$

$$2 \times 3000 = 6000$$

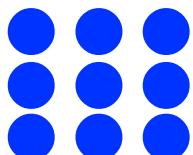


$$6 \div 2 = 3$$

$$60 \div 2 = 30$$

$$600 \div 2 = 300$$

$$6000 \div 2 = 3000$$

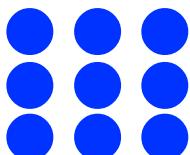


$$3 \times 3 = 9$$

$$3 \times 30 = 90$$

$$3 \times 300 = 900$$

$$3 \times 3000 = 9000$$

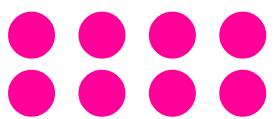


$$9 \div 3 = 3$$

$$90 \div 3 = 30$$

$$900 \div 3 = 300$$

$$9000 \div 3 = 3000$$

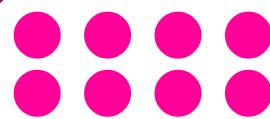


$$2 \times 4 = 8$$

$$2 \times 40 = 80$$

$$2 \times 400 = 800$$

$$2 \times 4000 = 8000$$



$$8 \div 2 = 4$$

$$80 \div 2 = 40$$

$$800 \div 2 = 400$$

$$8000 \div 2 = 4000$$

Look for the patterns.

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# Inverse operations

From: A Maths Dictionary for Kids by Jenny Eather at [www.amathsdictionaryforkids.com](http://www.amathsdictionaryforkids.com)

Inverse operations are opposite or reverse operations.

Multiplication and division are inverse operations.

A multiplication fact will give a division fact and vice versa.

## Multiplication

inverse

## Division



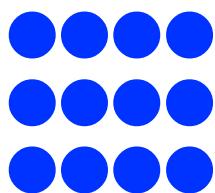
$$2 \times 3 = 6$$

$$3 \times 2 = 6$$



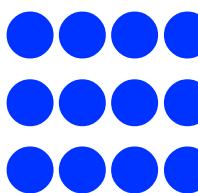
$$6 \div 2 = 3$$

$$6 \div 3 = 2$$



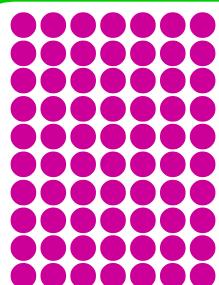
$$3 \times 4 = 12$$

$$4 \times 3 = 12$$



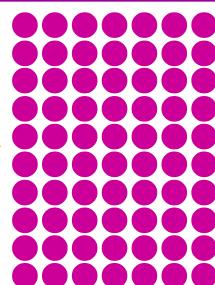
$$12 \div 3 = 4$$

$$12 \div 4 = 3$$



$$10 \times 7 = 70$$

$$7 \times 10 = 70$$



$$70 \div 10 = 7$$

$$70 \div 7 = 10$$

$$\begin{array}{r} 213 \\ \times \quad 3 \\ \hline 639 \end{array}$$

$$\begin{array}{r} 213 \\ 3 ) 639 \\ \hline \end{array}$$

You can use multiplication facts to check division,  
or use division facts to check multiplication.



# Split strategy (partitioning)

From: A Maths Dictionary for Kids by Jenny Eather at [www.amathsdictionaryforkids.com](http://www.amathsdictionaryforkids.com)

A way to multiply larger numbers where each digit is multiplied separately according to its place value.

1. Split the larger number into hundreds, tens and ones.
2. Multiply the hundreds, then the tens, then the ones.
3. Add the products together.

EXAMPLES:



$$\begin{aligned}165 \times 6 &= (100 \times 6) + (60 \times 6) + (5 \times 6) \\&= 600 + 360 + 30 \\&= 990\end{aligned}$$

OR

$$\begin{aligned}165 \times 6 &= (100 + 60 + 5) \times 6 \\&= 600 + 360 + 30 \\&= 990\end{aligned}$$

OR

$$\begin{array}{r} 165 \\ \times \underline{6} \\ \hline 600 \\ 360 \\ \hline 30 \\ \hline 990 \end{array}$$

Start with the largest place value.



# Reordering

From: A Maths Dictionary for Kids by Jenny Eather at [www.amathsdictionaryforkids.com](http://www.amathsdictionaryforkids.com)

A multiplication strategy that changes the order of the numbers to make calculations easier.



This strategy is based on the commutative law, rule or property of multiplication.

That is, the product will remain the same regardless of the order of the numbers being multiplied.

$$\begin{aligned} 43 \times 3 &= 3 \times 43 \\ &= 129 \end{aligned}$$

$$\begin{aligned} 20 \times 2 \times 4 &= 4 \times 20 \times 2 \\ &= 160 \end{aligned}$$

$$\begin{array}{r} 620 \\ \times 3 \\ \hline 1860 \end{array}$$

$3 \times 620 =$  620

Use whatever order is easier for you.



# Area model of multiplication

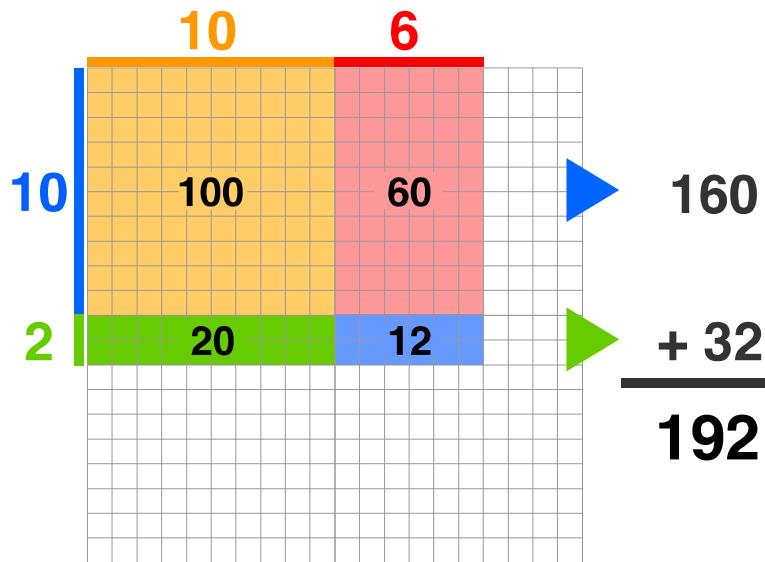
From: A Maths Dictionary for Kids by Jenny Eather at [www.amathsdictionaryforkids.com](http://www.amathsdictionaryforkids.com)

The area of rectangles is used to model the multiplication of digits in two numbers according to their place value.

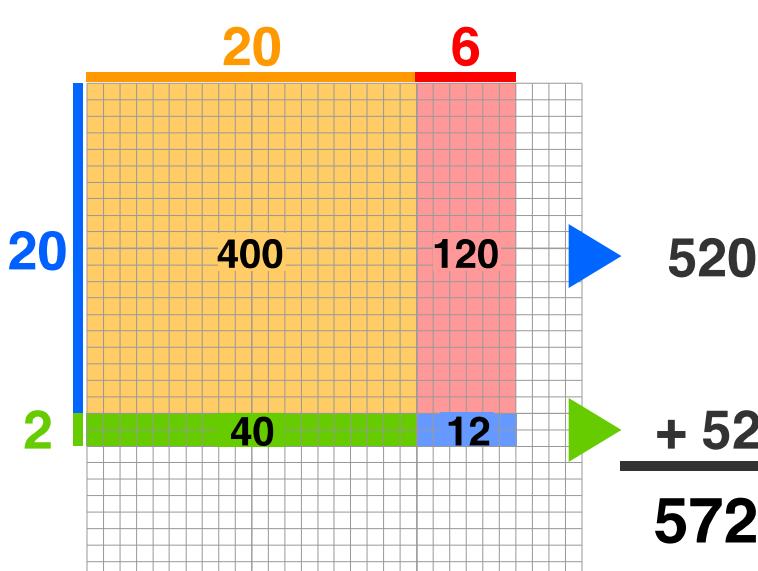
It shows the partial products which are then added together to get the answer.

## EXAMPLES:

$$16 \times 12$$



$$26 \times 22$$



Multiply

$$26 \times 22$$

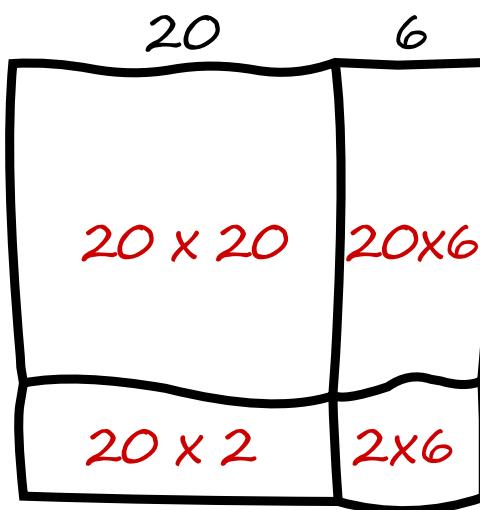
$$(20+6) \times (20+2)$$



20



2



Add Answer

$$\begin{array}{r} 400 \\ 120 \\ \hline \end{array}$$

$$\begin{array}{r} 40 \\ 12 \\ \hline \end{array}$$



Also called the partial products model.

This model is an application of the distributive property of multiplication which states multiplying a number is the same as multiplying its addends by the number, then adding the partial products.



# Multiplication Chart



From: A Maths Dictionary for Kids by Jenny Eather at [www.amathsdictionaryforkids.com](http://www.amathsdictionaryforkids.com)

**X** Read across **and** down  
to find the product of any two green numbers.

0 1 2 3 4 5 6 7 8 9 10

0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9	10
2	0	2	4	6	8	10	12	14	16	18	20
3	0	3	6	9	12	15	18	21	24	27	30
4	0	4	8	12	16	20	24	28	32	36	40
5	0	5	10	15	20	25	30	35	40	45	50
6	0	6	12	18	24	30	36	42	48	54	60
7	0	7	14	21	28	35	42	49	56	63	70
8	0	8	16	24	32	40	48	56	64	72	80
9	0	9	18	27	36	45	54	63	72	81	90
10	0	10	20	30	40	50	60	70	80	90	100

Read across **or** down to find the multiples of  
any green number.





# Times Tables



From: A Maths Dictionary for Kids by Jenny Eather at [www.amathsdictionaryforkids.com](http://www.amathsdictionaryforkids.com)

$1 \times 1 = 1$	$1 \times 2 = 2$	$1 \times 3 = 3$	$1 \times 4 = 4$
$2 \times 1 = 2$	$2 \times 2 = 4$	$2 \times 3 = 6$	$2 \times 4 = 8$
$3 \times 1 = 3$	$3 \times 2 = 6$	$3 \times 3 = 9$	$3 \times 4 = 12$
$4 \times 1 = 4$	$4 \times 2 = 8$	$4 \times 3 = 12$	$4 \times 4 = 16$
$5 \times 1 = 5$	$5 \times 2 = 10$	$5 \times 3 = 15$	$5 \times 4 = 20$
$6 \times 1 = 6$	$6 \times 2 = 12$	$6 \times 3 = 18$	$6 \times 4 = 24$
$7 \times 1 = 7$	$7 \times 2 = 14$	$7 \times 3 = 21$	$7 \times 4 = 28$
$8 \times 1 = 8$	$8 \times 2 = 16$	$8 \times 3 = 24$	$8 \times 4 = 32$
$9 \times 1 = 9$	$9 \times 2 = 18$	$9 \times 3 = 27$	$9 \times 4 = 36$
$10 \times 1 = 10$	$10 \times 2 = 20$	$10 \times 3 = 30$	$10 \times 4 = 40$
$11 \times 1 = 11$	$11 \times 2 = 22$	$11 \times 3 = 33$	$11 \times 4 = 44$
$12 \times 1 = 12$	$12 \times 2 = 24$	$12 \times 3 = 36$	$12 \times 4 = 48$
$1 \times 5 = 5$	$1 \times 6 = 6$	$1 \times 7 = 7$	$1 \times 8 = 8$
$2 \times 5 = 10$	$2 \times 6 = 12$	$2 \times 7 = 14$	$2 \times 8 = 16$
$3 \times 5 = 15$	$3 \times 6 = 18$	$3 \times 7 = 21$	$3 \times 8 = 24$
$4 \times 5 = 20$	$4 \times 6 = 24$	$4 \times 7 = 28$	$4 \times 8 = 32$
$5 \times 5 = 25$	$5 \times 6 = 30$	$5 \times 7 = 35$	$5 \times 8 = 40$
$6 \times 5 = 30$	$6 \times 6 = 36$	$6 \times 7 = 42$	$6 \times 8 = 48$
$7 \times 5 = 35$	$7 \times 6 = 42$	$7 \times 7 = 49$	$7 \times 8 = 56$
$8 \times 5 = 40$	$8 \times 6 = 48$	$8 \times 7 = 56$	$8 \times 8 = 64$
$9 \times 5 = 45$	$9 \times 6 = 54$	$9 \times 7 = 63$	$9 \times 8 = 72$
$10 \times 5 = 50$	$10 \times 6 = 60$	$10 \times 7 = 70$	$10 \times 8 = 80$
$11 \times 5 = 55$	$11 \times 6 = 66$	$11 \times 7 = 77$	$11 \times 8 = 88$
$12 \times 5 = 60$	$12 \times 6 = 72$	$12 \times 7 = 84$	$12 \times 8 = 96$
$1 \times 9 = 9$	$1 \times 10 = 10$	$1 \times 11 = 11$	$1 \times 12 = 12$
$2 \times 9 = 18$	$2 \times 10 = 20$	$2 \times 11 = 22$	$2 \times 12 = 24$
$3 \times 9 = 27$	$3 \times 10 = 30$	$3 \times 11 = 33$	$3 \times 12 = 36$
$4 \times 9 = 36$	$4 \times 10 = 40$	$4 \times 11 = 44$	$4 \times 12 = 48$
$5 \times 9 = 45$	$5 \times 10 = 50$	$5 \times 11 = 55$	$5 \times 12 = 60$
$6 \times 9 = 54$	$6 \times 10 = 60$	$6 \times 11 = 66$	$6 \times 12 = 72$
$7 \times 9 = 63$	$7 \times 10 = 70$	$7 \times 11 = 77$	$7 \times 12 = 84$
$8 \times 9 = 72$	$8 \times 10 = 80$	$8 \times 11 = 88$	$8 \times 12 = 96$
$9 \times 9 = 81$	$9 \times 10 = 90$	$9 \times 11 = 99$	$9 \times 12 = 108$
$10 \times 9 = 90$	$10 \times 10 = 100$	$10 \times 11 = 110$	$10 \times 12 = 120$
$11 \times 9 = 99$	$11 \times 10 = 110$	$11 \times 11 = 121$	$11 \times 12 = 132$
$12 \times 9 = 108$	$12 \times 10 = 120$	$12 \times 11 = 132$	$12 \times 12 = 144$

# Multiples and LCM

From: A Maths Dictionary for Kids by Jenny Eather at [www.amathsdictionaryforkids.com](http://www.amathsdictionaryforkids.com)

The multiple of a number is the product of multiplying that number by another whole number.

## Multiples Chart

<b>X</b>	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4	4	8	12	16	20	24	28	32	36	40
5	5	10	15	20	25	30	35	40	45	50
6	6	12	18	24	30	36	42	48	54	60
7	7	14	21	28	35	42	49	56	63	70
8	8	16	24	32	40	48	56	64	72	80
9	9	18	27	36	45	54	63	72	81	90
10	10	20	30	40	50	60	70	80	90	100



The LCM is the least or lowest number that is a common multiple of two or more numbers.

## Finding the LCM

1. List the multiples for each number.  
4    4, 8, 12, 16, 20, 24, 28, 32, 36, ...  
6    6, 12, 18, 24, 30, 36, 42, 48, ...
2. List the common multiples in order.  
**12, 24, 36, ...**
3. Record the lowest.  
**LCM = 12**



# Factors and HCF

From: A Maths Dictionary for Kids by Jenny Eather at [www.amathsdictionaryforkids.com](http://www.amathsdictionaryforkids.com)

A factor is a whole number that divides exactly into another given number.

That is, a whole number that multiplies with another number to make a third number.



To find the factors of a number, first divide by 1 and then keep working down using the next lowest number that will divide exactly. Record each factor pair.

$$\begin{array}{c} 20 \\ 1 \times 20 \\ 2 \times 10 \\ 4 \times 5 \end{array}$$

$$\begin{array}{c} 24 \\ 1 \times 24 \\ 2 \times 12 \\ 3 \times 8 \\ 4 \times 6 \end{array}$$

$$\begin{array}{c} 48 \\ 1 \times 48 \\ 2 \times 24 \\ 3 \times 16 \\ 4 \times 12 \\ 6 \times 8 \end{array}$$

$$\begin{array}{c} 96 \\ 1 \times 96 \\ 2 \times 48 \\ 3 \times 32 \\ 4 \times 24 \\ 6 \times 16 \\ 8 \times 12 \end{array}$$



The HCF or GCF is the highest or greatest common factor that will divide two or more other numbers exactly.

## Finding the HCF or GCF

1. List the factors for each number.

20 1, 2, 4, 5, 10, 20  
24 1, 2, 3, 4, 6, 8, 12, 24

2. List the common factors.

1, 2, 4

3. Record the highest.

HCF or GCF = 4



# Prime factors and HCF

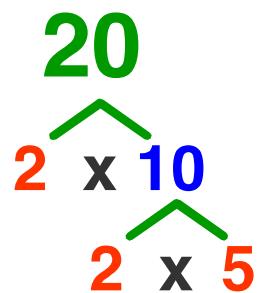
From: A Maths Dictionary for Kids by Jenny Eather at [www.amathsdictionaryforkids.com](http://www.amathsdictionaryforkids.com)

A prime factor is a prime number that divides exactly into another given number. Every positive integer has its own unique set of prime factors.

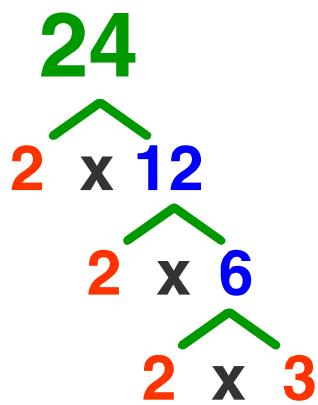
In prime factorisation, a number is written as the product of its prime factors.



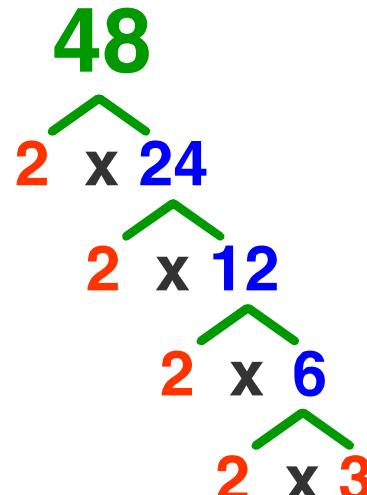
To find the prime factors of a composite number, first divide the number by 2 and then keep working down using 2 or the next lowest prime number that will divide exactly, until there are no composite factors left.



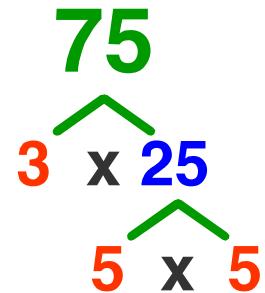
$$20 = 2 \times 2 \times 5$$



$$24 = 2 \times 2 \times 2 \times 3$$



$$48 = 2 \times 2 \times 2 \times 2 \times 3$$



$$75 = 3 \times 5 \times 5$$



The HCF (highest common factor) or GCF (greatest common factor) is the product of all the prime factors two or more numbers have in common.

## Finding the HCF or GCF

1. List the prime factors for each number.

$$20 \quad 2 \times 2 \times 5$$

$$48 \quad 2 \times 2 \times 2 \times 2 \times 2 \times 3$$

↓      ↓  
2 × 2

2. Find the common prime factors.

3. Calculate their product. **HCF or GCF = 4**



# Divisibility rules

From: A Maths Dictionary for Kids by Jenny Eather at [www.amathsdictionaryforkids.com](http://www.amathsdictionaryforkids.com)

A number is divisible by another number if it can be divided exactly without leaving a remainder.

## Divisibility Chart



A number is divisible by ...	If ...	Divisible	Not Divisible
2	the last digit is divisible by 2	872 <b>4</b>	872 <b>1</b>
3	the sum of the digits is divisible by 3	<b>8724</b> 21	8722
4	the number made by the last two digits is divisible by 4	87 <b>24</b>	87 <b>23</b>
5	the last digit is 0 or 5	872 <b>5</b>	872 <b>4</b>
6	the number is divisible by both 2 and 3	<b>8724</b>	8722
7	the number is 0 or divisible by 7, after removing, doubling and subtracting the last digit from the number	872 <b>2</b> 868	8724
8	the number made by the last three digits is divisible by 8	87 <b>20</b>	8 <b>724</b>
9	the sum of the digits is divisible by 9	<b>8721</b> 18	8724
10	the last digit is 0	872 <b>0</b>	872 <b>4</b>



# Long multiplication

From: A Maths Dictionary for Kids by Jenny Eather at [www.amathsdictionaryforkids.com](http://www.amathsdictionaryforkids.com)

A traditional method used to multiply by a number which contains more than one digit.

The larger number to be multiplied is usually written on the top line with the smaller number written underneath.

Numbers are written underneath each other according their place value. The numbers are multiplied vertically, starting with the ones column then moving left column by column.

The multiplication lines are then added together to give the final answer.

## Example

$$\$43,864 \times 423 =$$

Multiply by the digit in:

- the 1s column
- the 10s column
- the 100s column

Add the results

$$\begin{array}{r} 43864 \\ \times \underline{423} \\ \hline 131592 \\ 877280 \\ \hline 17545600 \\ \hline 18554472 \end{array}$$

Zero or blank spaces may be used as placeholders.

$$\$43,864 \times 423 = \$18,554,472$$

When a column is more than ten, the tens go into the next column left and are added to the answer in that line, the ones stay in their own column.

# Long division

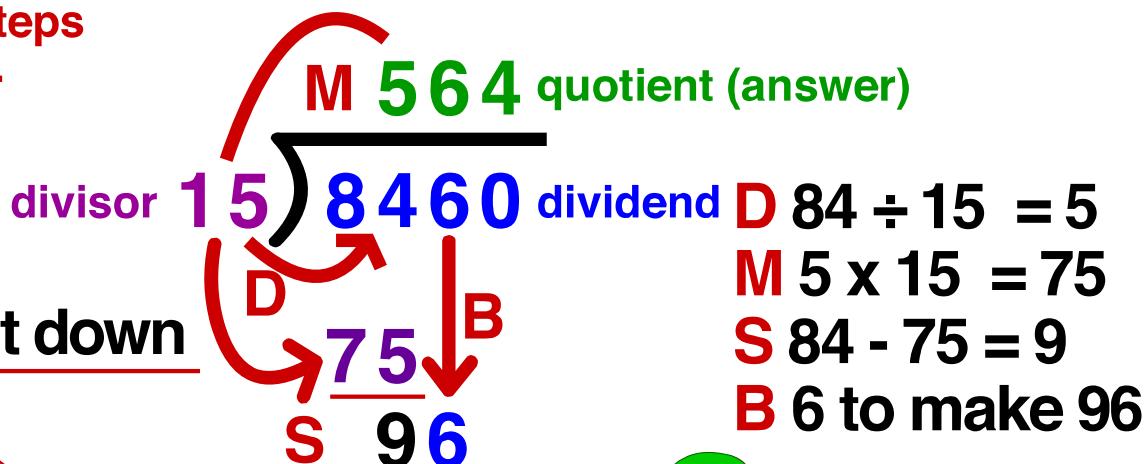
From: A Maths Dictionary for Kids by Jenny Eather at [www.amathsdictionaryforkids.com](http://www.amathsdictionaryforkids.com)

To divide larger numbers a horizontal algorithm is used with a division symbol often called the division bracket.

## Long Division Steps

Repeat the first four steps as often as necessary.

1. D ivide
  2. M ultiply
  3. S ubtract
  4. B ring next digit down
- 
- R emainder



## Example

$$\begin{array}{r} 1225 \frac{13}{21} \\ 21 ) 25738 \\ -21 \\ \hline 47 \\ -42 \\ \hline 53 \\ -42 \\ \hline 118 \\ -105 \\ \hline 13 \end{array}$$

To calculate the final remainder as a decimal fraction, add a decimal point to the dividend and the quotient. Then add zeros as necessary and keep dividing until the required number of decimal places is reached.

$$\begin{array}{r} 1225.619 \\ 21 ) 25738.0000 \\ -21 \\ \hline 26 \\ -21 \\ \hline 50 \\ -42 \\ \hline 80 \\ -70 \\ \hline 10 \\ -10 \\ \hline 0 \end{array}$$

The final remainder may be written as a fraction or decimal fraction, whole number(s) after the letter R or may be used to round the quotient (answer) to a whole number.

# Key Words

From: A Maths Dictionary for Kids by Jenny Eather at [www.amathsdictionaryforkids.com](http://www.amathsdictionaryforkids.com)

Key words can help us solve mathematical word problems.



## Addition

add  
add to, added to  
addition of  
all together  
altogether  
and

both  
combined  
extra  
in all  
increase by  
increased by

join  
more, more than  
plus  
sum  
together  
total, total of



## Subtraction

decrease, decreased  
deduct  
difference  
difference between  
dropped, fell  
fewer, fewer than

how much less  
how many more  
how much more  
how many left  
how much left  
less, less than

minus  
nearer, further  
reduce, reduced by  
remaining  
subtract  
take away



## Multiplication

area of  
at  
by  
double, doubled  
each had  
groups of

multiplied by  
of  
multiple  
per  
product, product of  
rate

rows of  
sets of  
times  
triple  
twice



## Division

divide evenly  
divided by  
equal parts  
equal pieces  
fraction

for each  
half, quarter  
how many each  
out of  
per  
percent, percentage

quotient  
ratio, ratio of  
share, share of  
shared between  
shared equally  
split



# Problem Solving

From: A Maths Dictionary for Kids by Jenny Eather at [www.amathsdictionaryforkids.com](http://www.amathsdictionaryforkids.com)

Following steps and using strategies can help us solve mathematical problems, particularly unfamiliar ones.

## for word problems

- Circle the numbers
- Underline key words
- Box the question
- Eliminate irrelevant info

## the question



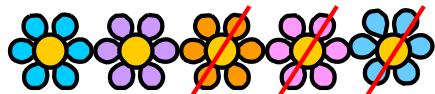
Lily had 5 cookies.  
She gave some away to Liam.  
She had 1 cookie left.  
**How many cookies did Liam get?**

## the strategies

- Apply known methods, or
- Research strategies
- Choose a strategy



### find a pattern or rule



### draw a picture



### draw a diagram



### work backwards

$$5 - \boxed{?} = 1$$

### write an equation

$$\begin{aligned} 198 - 72 &= ? \\ 200 - 70 &= 130 \quad \text{estimated} \\ 198 - 72 &= 126 \quad \text{checked} \end{aligned}$$

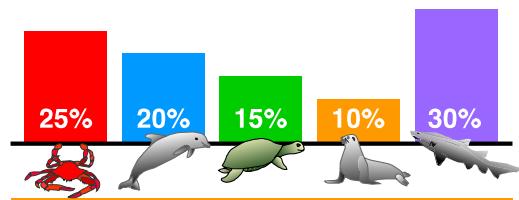
### guess and check



### act it out

Animal	Sightings
crabs	5
dolphins	4
sharks	6

### make a list or table



### draw a graph or chart



Liam got 4 cookies. ✓

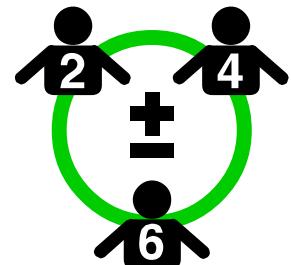
- Explain your reasoning.



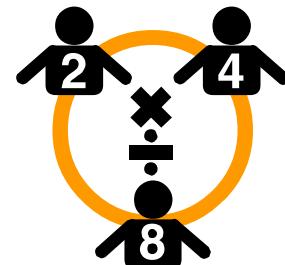
# Fact families

From: A Maths Dictionary for Kids by Jenny Eather at [www.amathsdictionaryforkids.com](http://www.amathsdictionaryforkids.com)

A fact family is made up of four facts related by addition and subtraction or multiplication and division. Each fact family consists of a pair of numbers plus the answer when they are either added or multiplied.



For example, 2 and 4 with 6 if they are added or 2 and 4 with 8 if they are multiplied.



Knowing one fact can help work out the other facts.

## EXAMPLES: Addition and subtraction

2, 4, and 6     $2 + 4 = 6$      $4 + 2 = 6$      $6 - 2 = 4$      $6 - 4 = 2$

3, 5, and 8     $3 + 5 = 8$      $5 + 3 = 8$      $8 - 3 = 5$      $8 - 5 = 3$

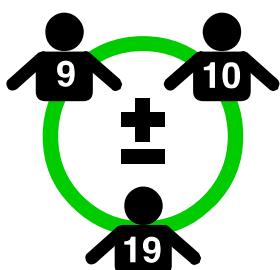
## EXAMPLES: Multiplication and division

2, 4, and 8     $2 \times 4 = 8$      $4 \times 2 = 8$      $8 \div 2 = 4$      $8 \div 4 = 2$

3, 5, and 15     $3 \times 5 = 15$      $5 \times 3 = 15$      $15 \div 3 = 5$      $15 \div 5 = 3$

## Fact family relationships

9                  10



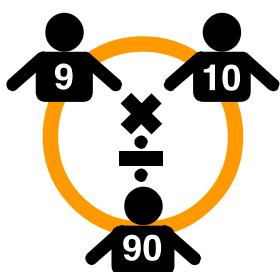
### FACT FAMILY: Addition and subtraction

$$9 + 10 = 19$$

$$10 + 9 = 19$$

$$19 - 9 = 10$$

$$19 - 10 = 9$$



### FACT FAMILY: Multiplication and division

$$9 \times 10 = 90$$

$$10 \times 9 = 90$$

$$90 \div 9 = 10$$

$$90 \div 10 = 9$$



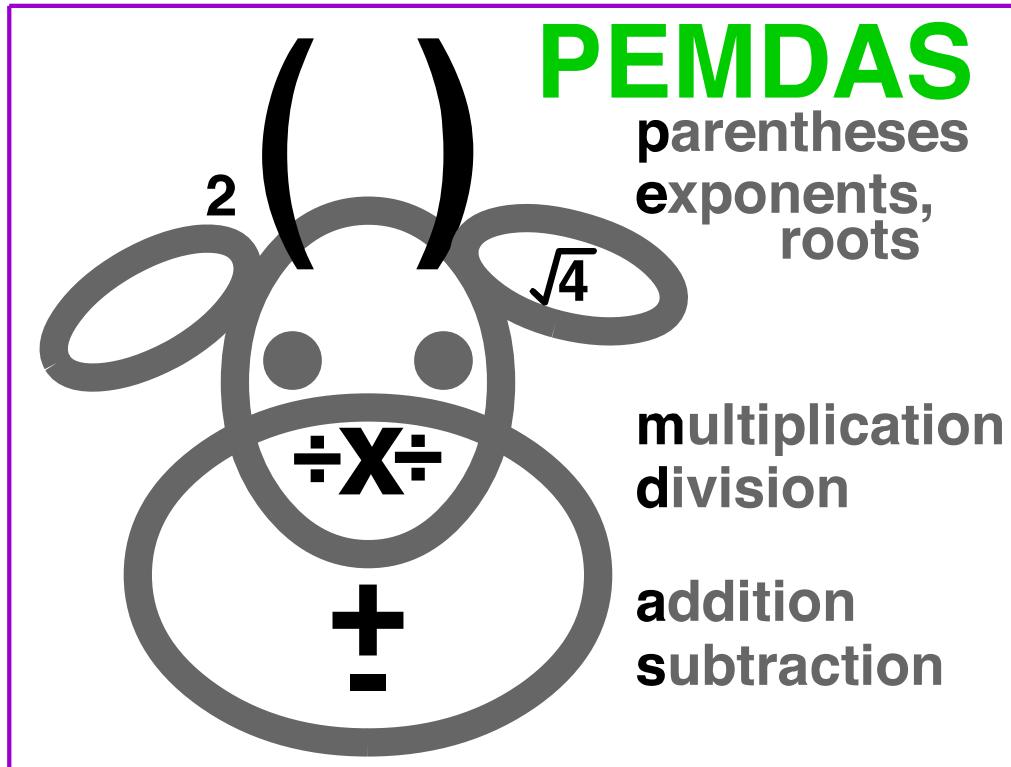
# Order of operations



From: A Maths Dictionary for Kids by Jenny Eather at [www.amathsdictionaryforkids.com](http://www.amathsdictionaryforkids.com)

Mathematical operations need to be done in the right order.

Often acronyms such as PEMDAS, BIDMAS or BODMAS are used to help remember the sequence.



e.g.  $2 + 6 (3+1)^2$

$$P = 2 + 6 (4)^2$$

$$E = 2 + 6 (16)$$

$$M = 2 + 96$$

D

$$A = 98$$

S

## wrong order ... wrong answer

### PEMDAS

1. Parentheses ( ) or { } or [ ], brackets
2. Exponents (indices, orders), roots
3. Multiplication (times)      **x and ÷ have equal precedence**  
Division (divided by)      **x and ÷ have equal precedence**
4. Addition (plus)  
Subtraction (minus)

**Use the  
PEMDAS  
order.**



# Operations properties



From: A Maths Dictionary for Kids by Jenny Eather at [www.amathsdictionaryforkids.com](http://www.amathsdictionaryforkids.com)

## Addition

- + Associative property  
 $(a + b) + c = a + (b + c)$     $(4 + 2) + 1 = 4 + (2 + 1)$
- + Commutative property  
 $a + b = b + a$     $4 + 2 = 2 + 4 = 6$
- + Additive identity property of 0  
 $a + 0 = 0 + a = a$     $4 + 0 = 0 + 4 = 4$

## Multiplication

- × Associative property  
 $(a \times b) \times c = a \times (b \times c)$     $(4 \times 2) \times 1 = 4 \times (2 \times 1)$
- × Commutative property  
 $a \times b = b \times a$     $4 \times 2 = 2 \times 4 = 8$
- × Multiplicative identity property of 1  
 $a \times 1 = 1 \times a = a$     $4 \times 1 = 1 \times 4 = 4$
- × Zero product property  
 $a \times b = 0$  either  $a = 0$ ,  $b = 0$  or both  $a$  and  $b = 0$

### Distributive property of multiplication over addition

$$a \times (b + c) = a \times b + a \times c \quad 4 \times (2 + 1) = 4 \times 2 + 4 \times 1$$

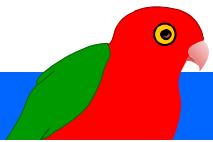
## Inverses

- + Additive inverses  
 $a + (-a) = (-a) + a = 0$     $4 + (-4) = (-4) + 4 = 0$
- × Multiplicative inverses  
 $a \times 1/a = 1/a \times a = 1$     $4 \times 1/4 = 1/4 \times 4 = 1$   
if  $a \neq 0$

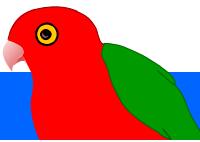


# Operations on positive and negative numbers

From: A Maths Dictionary for Kids by Jenny Eather at [www.amathsdictionaryforkids.com](http://www.amathsdictionaryforkids.com)



## Addition



**Positive + Positive = Positive**

$$5 + 3 = 8$$

**Negative + Negative = Negative**

$$(-5) + (-3) = -8$$

**\* Positive + Negative or Negative + Positive**

$$(-5) + 3 = -2$$

- subtract the smaller number from the larger number,
- then use the sign of the larger number in the answer

$$3 + (-5) = -2$$

$$(-3) + 5 = 2$$

$$5 + (-3) = 2$$

## Subtraction

**Negative - Positive = Negative**

$$(-5) - 3 = (-5) + (-3) = -8$$

**Positive - Negative = Positive**

$$5 - (-3) = 5 + 3 = 8$$

**\* Negative - Negative = Negative + Positive**

$$(-5) - (-3) = (-5) + 3 = -2$$

- treat as Negative + Positive

$$(-3) - (-5) = (-3) + 5 = 2$$

- subtract the smaller number from the larger number,

- then use the sign of the larger number in the answer

## Multiplication

**Positive x Positive = Positive**

$$5 \times 3 = 15$$

**Negative x Negative = Positive**

$$(-3) \times (-5) = 15$$

**Negative x Positive = Negative**

$$(-3) \times 5 = -15$$

**Positive x Negative = Negative**

$$3 \times (-5) = -15$$

- change double negatives to a positive

## Division

**Positive ÷ Positive = Positive**

$$15 \div 3 = 5$$

**Negative ÷ Negative = Positive**

$$(-15) \div (-3) = 5$$

**Negative ÷ Positive = Negative**

$$(-15) \div 3 = -5$$

**Positive ÷ Negative = Negative**

$$15 \div (-3) = -5$$

- change double negatives to a positive

